What Is Claimed Is:

1. An optical transmission device comprising light guides each having light incidence/emission sections, a substrate which fixes the light guides, and optical elements arranged on the substrate to match the light incidence/emission sections of the light guides, wherein the light guides and the substrate are substantially equal in a coefficient of linear expansion and in a rate of dimensional variation due to water absorption.

2. The optical transmission device according to Claim 1, wherein a difference in the rate of dimensional variation due to water absorption is:

not more than 0.6% where a light guide size is 50 mm or less;

not more than 0.3% where the light guide size is 50 to 100 mm;

not more than 0.15% where the light guide size is 100 to 200 mm;

not more than 0.1% where the light guide size is 200 to 300 mm;

not more than 0.08% where the light guide size is 300 to 400 mm;

not more than 0.06% where the light guide size is 400 to 500 mm;

not more than 0.05% where the light guide size is 500 to 600 mm;

not more than 0.04% where the light guide size is 600 to 800 mm; or

not more than 0.03% where the light guide size is 800 to 1000 mm or more.

3. The optical transmission device according to Claim 2, wherein the optical elements are held in a package and arranged on the substrate.

4. The optical transmission device according to Claim 3, wherein the package is in the form of an optical connector or optical plug.

5. The optical transmission device according to Claim 3, wherein at least two items of the light guides, the substrate and the package are formed of the same material.

6. The optical transmission device according to Claim 2, wherein each of the

light guides has plural stepped portions at one end and a vertical face provided with a reflecting section or a reflecting/diffusing section at the other end.

7. The optical transmission device according to Claim 2, wherein each of the light guides has plural stepped portions at one end, a vertical face at the other end, and askew faces each for altering a direction of optical signals at the both ends.

8. An optical transmission device comprising light guides each having light incidence/emission sections, a substrate which fixes the light guides, and optical elements arranged on the substrate to match the light incidence/emission sections of the light guides, wherein the light guides and the substrate are substantially equal in a coefficient of linear expansion and in a water absorption rate.

9. The optical transmission device according to Claim 8, wherein the optical elements are held in a package and arranged on the substrate.

10. The optical transmission device according to Claim 9, wherein the package is in the form of an optical connector or optical plug.

11. The optical transmission device according to Claim 9, wherein at least two items of the light guides, the substrate and the package are formed of the same material.

12. The optical transmission device according to Claim 8, wherein each of the light guides has plural stepped portions at one end and a vertical face provided with a reflecting section or a reflecting/diffusing section at the other end.

13. The optical transmission device according to Claim 8, wherein each of the light guides has plural stepped portions at one end, a vertical face at the other end, and askew faces each for altering a direction of optical signals at the both ends.

14. An optical transmission device comprising light guides each having light incidence/emission sections, a substrate which fixes the light guides, and optical elements arranged on the substrate to match the light incidence/emission sections of the light guides, wherein an extent of a positional lag between the light

incidence/emission sections and the optical elements arising from a difference between the light guides and the substrate in a rate of dimensional variation due to water absorption is not more than 300 μm.

15. The optical transmission device according to Claim 14, wherein the optical elements are held in a package and arranged on the substrate.

16. The optical transmission device according to Claim 15, wherein the package is in the form of an optical connector or optical plug.

17. The optical transmission device according to Claim 15, wherein at least two items of the light guides, the substrate and the package are formed of the same material.

18. The optical transmission device according to Claim 14, wherein each of the light guides has plural stepped portions at one end and a vertical face provided with a reflecting section or a reflecting/diffusing section at the other end.

19. The optical transmission device according to Claim 14, wherein each of the light guides has plural stepped portions at one end, a vertical face at the other end and askew faces each for altering a direction of optical signals at the both ends.

20. An optical transmission device comprising light guides each having light incidence/emission sections, a substrate which fixes the light guides, and optical elements arranged on the substrate to match the light incidence/emission sections of the light guides, wherein a total of differences between the substrate and the light guides in a rate of dimensional variation due to linear expansion and the rate of the dimensional variation due to water absorption is:

not more than 0.6% where the light guide size is 50 mm or less;

not more than 0.3% where the light guide size is 50 to 100 mm;

not more than 0.15% where the light guide size is 100 to 200 mm;

not more than 0.1% where the light guide size is 200 to 300 mm;

not more than 0.08% where the light guide size is 300 to 400 mm;

not more than 0.06% where the light guide size is 400 to 500 mm;

not more than 0.05% where the light guide size is 500 to 600 mm;

not more than 0.04% where the light guide size is 600 to 800 mm; or

not more than 0.03% where the light guide size is 800 to 1000 mm or more.

21. The optical transmission device according to Claim 20, wherein the optical elements are held in a package and arranged on the substrate.

22. The optical transmission device according to Claim 21, wherein the package is in the form of an optical connector or optical plug.

23. The optical transmission device according to Claim 21, wherein at least two items of the light guides, the substrate and the package are formed of the same material.

24. The optical transmission device according to Claim 20, wherein each of the light guides has plural stepped portions at one end and a vertical face provided with a reflecting section or a reflecting/diffusing section at the other end.

25. The optical transmission device according to Claim 20, wherein each of the light guides has plural stepped portions at one end a vertical face at the other end and askew faces each for altering a direction of optical signals at the both ends.

26. An optical transmission device comprising light guides each having light incidence/emission sections, a substrate which fixes the light guides, and optical elements arranged on the substrate to match the light incidence/emission sections of the light guides, wherein a relationship between the substrate and the light guides is such that:

a difference in a coefficient of linear expansion is not more than 300% and a difference in a rate of dimensional variation due to water absorption is not more than 0.6% where the light guide size is 50 mm or less;

the difference in the coefficient of linear expansion is not more than 150% and the difference in the rate of dimensional variation due to water absorption is not more

than 0.3% where the light guide size is 50 to 100 mm;

the difference in the coefficient of linear expansion is not more than 100% and the difference in the rate of dimensional variation due to water absorption is not more than 0.15% where the light guide size is 100 to 200 mm;

the difference in the coefficient of linear expansion is not more than 80% and the difference in the rate of dimensional variation due to water absorption is not more than 0.1% where the light guide size is 200 to 300 mm;

the difference in the coefficient of linear expansion is not more than 50% and the difference in the rate of dimensional variation due to water absorption is not more than 0.08% where the light guide size is 300 to 400 mm;

the difference in the coefficient of linear expansion is not more than 40% and the difference in the rate of dimensional variation due to water absorption is not more than 0.06% where the light guide size is 400 to 500 mm;

the difference in the coefficient of linear expansion is not more than 30% and the difference in the rate of dimensional variation due to water absorption is not more than 0.05% where the light guide size is 500 to 600 mm;

the difference in the coefficient of linear expansion is not more than 25% and the difference in the rate of dimensional variation due to water absorption is not more than 0.04% where the light guide size is 600 to 800 mm; or

the difference in the coefficient of linear expansion is not more than 15% and the difference in the rate of dimensional variation due to water absorption is not more than 0.03% where the light guide size is 800 to 1000 mm or more.

27. The optical transmission device according to Claim 26, wherein the optical elements are held in a package and arranged on the substrate.

28. The optical transmission device according to Claim 27, wherein the package is in the form of an optical connector or optical plug.

29. The optical transmission device according to Claim 27, wherein at least

two items of the light guides, the substrate and the package are formed of the same material.

30. The optical transmission device according to Claim 26, wherein each of the light guides has plural stepped portions at one end and a vertical face provided with a reflecting section or a reflecting/diffusing section at the other end.

31. The optical transmission device according to Claim 26, wherein each of the light guides has plural stepped portions at one end, a vertical face at the other end and askew faces each for altering a direction of optical signals at the both ends.